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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/002,802	11/02/2001	Michael D. Uhler	UM-06669	3812

7590 03/23/2005

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EXAMINER	
NGUYEN, QUANG	

ART UNIT	PAPER NUMBER
1636	

DATE MAILED: 03/23/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/002,802	UHLER, MICHAEL D.	
	Examiner	Art Unit	
	Quang Nguyen, Ph.D.	1636	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *22 February 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3,4,6-13,25,27,28,30-32 and 37-42* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *13 and 38-42* is/are allowed.

6)☒ Claim(s) *1,3,8-12,25,27,32 and 37* is/are rejected.

7)☒ Claim(s) *4, 6-7, 28 and 30-31* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Since this application is eligible for the transitional procedure of 37 CFR 1.129(a), and the fee set forth in 37 CFR 1.17(r) has been timely paid, the finality of the previous Office action is hereby withdrawn pursuant to 37 CFR 1.129(a). Applicant's first submission after final filed on 2/22/05 has been entered.

Amended claims 1, 3-4, 6-13, 25, 27-28, 30-32 and 37-42 are pending in the present application, and they are examined on the merits herein.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Amended claims 1, 3, 8-12, 25, 27, 32 and 37 are rejected under 35 U.S.C. 102(b) as being anticipated by Pierce et al. (WO 97/49434; Cited previously). **This is a reinstated rejection.**

Pierce et al. teach the preparation of a transfection complex comprising: (a) a heparin-binding moiety or a heparin-binding chimeric protein (e.g. an FGF-heparin binding domain conjugated chemically or as a fusion protein with PDGF or TGF-B that binds a heparin-coated stent and a PDGF or TGF receptor or a cell surface receptor; see page 7, lines 19-24); (b) a nucleic acid binding domain (e.g., poly-L-lysine, histones, protamines; see page 28, lines 22-35); and (c) a nucleic acid encoding a cytocide-

encoding agent, wherein the component (a) is conjugated either by chemical linkage (covalently linked) or as a fusion protein with the nucleic acid binding domain (page 25, lines 14-19). Pierce et al. also teach that a cytoplasm-translocation signal sequence or targeting molecules (e.g., KDEL, RDEL, KEEL) which is an amino acid sequence that causes retention of proteins in the lumen of the endoplasmic reticulum and/or to translocate proteins to the cytosol can be included in the heparin-binding moiety or a nucleic acid-binding domain (page 40, lines 12-29), and membrane-disruptive peptides or fusogenic peptides such as adenoviruses, virus-free viral proteins such as influenza virus hemaglutinin HA-2 can also be included in the conjugates to enhance gene delivery (page 40, line 30 continues to line 17 of page 41). Please note that the membrane-disruptive or fusogenic peptides fall within the scope of membrane permeable molecules which refer to molecules which are permeable to cell membranes (see instant specification, page 32, line 28 continues to line 6 of page 33). The transfection complex is bound to medical devices (e.g., stents, tubing, probes, cannulas, catheters, vascular grafts, artifical heart valves) coated with or without heparin (page 57), and thereby the transfection complex is immobilized on a surface.

Pierce et al. further teach that that the medical devices containing the transfection complex are tested for biological activity in *in vitro* and *in vivo* assays; for example by measuring proliferation of certain target cells *in vitro* or decreased smooth muscle hyperplasia *in vivo* (page 57, lines 5-24, Figures 5-6). The medical devices are to be implanted into an animal to inhibit undesired cell proliferation or kill unwanted cells such as smooth muscle cells and tumor cells which are eukaryotic cells (page 58, lines

8-30). The step of measuring proliferation of certain target cells *in vitro* or decreased smooth muscle hyperplasia *in vivo* is an indirect step of detecting the expression of a nucleic acid encoding a cytocide-encoding agent in the transfected target cells.

Accordingly, the teachings of Pierce et al. meet the limitation of the instant claims, and therefore the reference anticipates the instant broad claims.

Response to Arguments

Applicant's arguments related to the above rejection in the Amendment filed on 3/4/04 (page 8) have been fully considered, but they are not found persuasive.

Applicants mainly argue that the Pierce reference does not teach a third complexing agent comprising a membrane permeable molecule, and therefore the reference can not anticipate the claims.

Please note that Pierce et al. teach specifically that membrane-disruptive peptides or fusogenic peptides such as adenoviruses, virus-free viral proteins such as influenza virus hemaglutinin HA-2 can also be included in the conjugates to be bound to the medical devices to enhance gene delivery (page 40, line 30 continues to line 17 of page 41). The membrane-disruptive or fusogenic peptides fall within the scope of membrane permeable molecules which refer to molecules which are permeable to cell membranes (see instant specification, page 32, line 28 continues to line 6 of page 33). The peptides must be membrane permeable, otherwise how can they be fusogenic and/or disruptive to membranes?

Accordingly, the teachings of Pierce et al. meet every limitation of the instant claims, and therefore the reference anticipates the instant claims.

Conclusions

Claims 13 and 38-42 are allowed.

Claims 4, 6-7, 28 and 30-31 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Quang Nguyen, Ph.D., whose telephone number is (571) 272-0776.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's mentor, David Guzo, Ph.D., may be reached at (571) 272-0767, or SPE, Irem Yucel, Ph.D., at (571) 272-0781.

To aid in correlating any papers for this application, all further correspondence regarding this application should be directed to Group Art Unit 1636; Central Fax No. (571) 273-8300.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to (571) 272-0547.

Patent applicants with problems or questions regarding electronic images that can be viewed in the Patent Application Information Retrieval system (PAIR) can now contact the USPTO's Patent Electronic Business Center (Patent EBC) for assistance. Representatives are available to answer your questions daily from 6 am to midnight (EST). The toll free number is (866) 217-9197. When calling please have your application serial or patent number, the type of document you are having an image problem with, the number of pages and the specific nature of the problem. The Patent Electronic Business Center will notify applicants of the resolution of the problem within 5-7 business days. Applicants can also check PAIR to confirm that the problem has been corrected. The USPTO's Patent Electronic Business Center is a complete service center supporting all patent business on the Internet. The USPTO's PAIR system provides Internet-based access to patent application status and history information. It also enables applicants to view the scanned images of their own application file folder(s) as well as general patent information available to the public.

DAVID GUZO
PRIMARY EXAMINER